SUMMARY AND CONCLUSIONS

Background and Problem

Coastal wetlands have received a great deal of attention because of the many biologic, geomorphic, and hydrologic values they provide for society. The extensive coastal wetlands of North Carolina are unique because of the preponderance of wetlands that have fresh water or lack lunar tides in spite of being under the influence of sea level rise. Two wetland types, irregularly flooded brackish marshes and irregularly flooded forested wetlands, are dominant shoreline features in the Albemarle and Pamlico Sound region. They have been little studied and are poorly understood ecologically relative to tidal brackish marshes and tidal freshwater marshes.

Because of the sharp transition that fringe[1] wetlands normally represent between a large body of open water and either upland or additional wetland on the landward side, they are potentially very important areas ecologically, geologically, and hydrologically. Fringe wetlands are considered to be essential fish habitat in brackish portions of estuaries, both in tidal and irregularly flooded wetland types. These wetlands constitute an important component of primary and secondary nursery areas for commercial and sport fisheries. The value of freshwater fringe forests for supporting fisheries is less certain, however, and remains to be explored.

One of the major concerns is whether fringe wetlands can be sustained under projected acceleration in sea-level rise as a result of global warming. To compound this problem is the fact that many of the wetland-upland transition zones are no longer available for migration because they have been occupied by human structures and activities incompatible with overland migration of wetlands. Projected increases in economic development and

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[1]Fringe wetlands are distinguished from riverine and basin (depression) wetlands by hydroperiod, direction of water flow, and zonation of vegetation. Fringe wetlands occur in estuaries where tidal forces dominate or in lakes where water moves in and out of the wetland due to wind, waves, and seiches. In contrast, riverine wetlands tend to be dominated by unidirectional flow, shorter hydroperiod, and higher sediment loads. Basin wetlands (peat bogs, pocosins) receive most of their water from precipitation, have strong seasonal fluctuations in water table, and have weak lateral flow, often limited to sheet flow.